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TRANSLATION

CELL - COSMOS - MARS

By

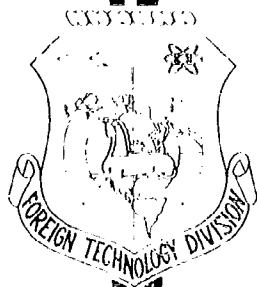
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FOREIGN TECHNOLOGY DIVISION

AIR FORCE SYSTEMS COMMAND

WRIGHT-PATTERSON AIR FORCE BASE

OHIO



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UNEDITED ROUGH DRAFT TRANSLATION

CELL - COSMOS - MARS

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CELL - COSMOS - MARS

A TASS correspondent reports from Leningrad that in the space biology laboratories of the Institutes of Cytology and Physiology of the Academy of Sciences of the USSR a series of experiments is being conducted on the behavior of living cells and organisms under the influence of ionizing and ultraviolet radiation at low temperatures and without oxygen.

In the words of Professor L. K. Lozina-Lozinskiy, director of the project: "Irradiation of paramecia with short (the most destructive) ultraviolet rays helped us produce for the first time a breed of paramecia which could withstand substantially larger doses of radiation than the original breed. It has been established that with the help of a number of chemical substances, e.g. calcium chloride and glycerine, it is possible to increase the resistance of cells to short-wave ultraviolet rays by a factor of ten, and the introduction into the medium surrounding the cell of adenosine triphosphate (ATP), a substance which absorbs large quantities of short ultraviolet rays, completely protects the cell from harm."

Another series of tests determined that paramecia could endure up to 400,000 roentgens of gamma irradiation (several tens of roentgens will kill a rabbit).

As tests indicated, organisms, especially high-altitude organisms, have an unusual ability to survive in environments with very little oxygen. Cardiograms of the heart-beat of an insect, taken with a device developed by I. A. Mikhail'chenko, established that high-altitude insects continue to live even when the atmospheric pressure drops to 5 mm Hg. This corresponds to conditions in space 100 to 200 kilometers from the earth.

In studying the "cosmos - cell" problem, according to Professor Lozina-Lozinskiy, Soviet and foreign specialists are devoting a great deal of attention to anabiosis. By producing conditions similar to those which possibly exist on Mars, our biologists have established that certain single-cell animals especially well adapted to a desert environment can multiply in an environment approximating that of Mars.

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